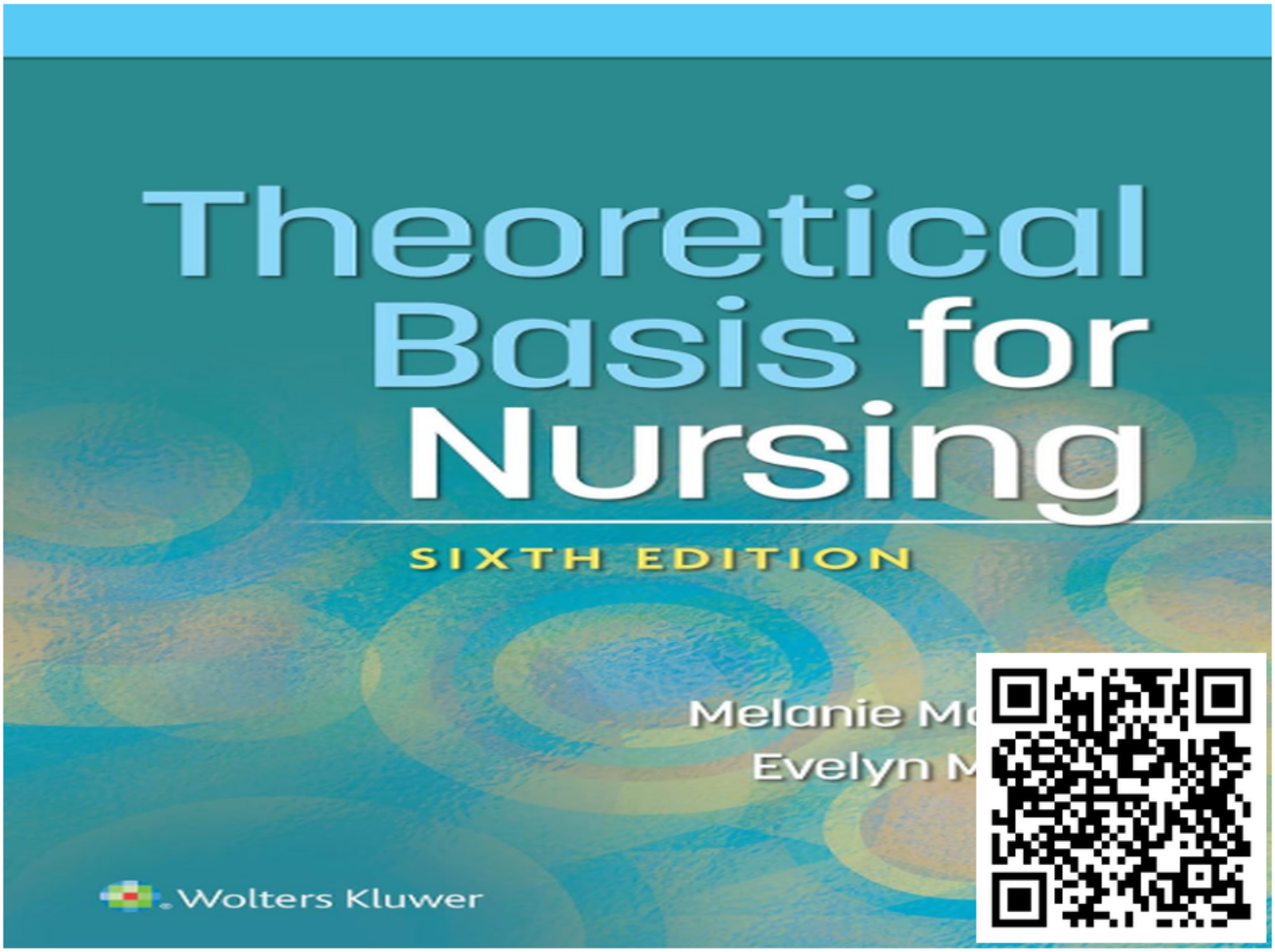

Theoretical Basis for Nursing

SIXTH EDITION

Melanie McEwen
Evelyn M. Wills

Wolters Kluwer

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DEDICATION

To Kaitlin and Grant—You have helped me broaden my thoughts and consider all kinds of possibilities; I hope I've done the same for you.

Also for Helen and Keith—Our children chose well. Besides, you have given us Madelyn, Logan, Brenna, Liam, Lucy, Andrew, Michael, and Jacob; they are gifts beyond words.

Melanie McEwen

To Tom, Paul, and Vicki, who light up my life. To Gwen, Teddy, Merlyn, and Madelyn, who have sent messages of support and love during this process.

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PREFACE

Rare is the student who enrolls in a nursing program and is excited about the requirement of taking a course on theory. Indeed, many fail to see theory's relevance to the real world of nursing practice and often have difficulty applying the information in later courses and in their research. This book is the result of the frustration felt by a group of nursing instructors who met a number of years ago to adopt a textbook for a theory course. Indeed, because of student complaints and faculty dissatisfaction, we were changing textbooks yet again. A fairly lengthy discussion arose in which we concluded that the available books did not meet the needs of our students or course faculty. We were determined to write a book that was a general overview of theory per se, stressing how it is—and should be—used by nurses to improve practice, research, education, and management/leadership.

As in past editions, an ongoing review of trends in nursing theory and nursing science has shown an increasing emphasis on middle range theory, evidence-based practice (EBP), and situation-specific theories as well as changes in educational techniques (e.g., more online learning) and curricular requirements (e.g., move toward the DNP and updated American Association of Colleges of Nursing [AACN's, 2021] updated *The Essentials: Core Competencies for Professional Nursing Education*). To reflect recognition of these changes, we have added updates and application examples throughout the various chapters.

Organization of the Text

Theoretical Basis for Nursing is designed to be a basic nursing theory textbook that includes the essential information students need to understand and apply theory in practice, research, education, and administration/management.

The book is divided into four units. **Unit I, Introduction to Theory** , provides the background needed to understand what theory is and how it is used in nursing. It outlines tools and techniques used to develop, analyze, and evaluate theory so that it can be used in nursing practice, research, administration and management, and education. In this unit, we have provided a balanced view of "hot" topics (e.g., philosophical world views and utilization of shared or borrowed theory). Also, rather than espousing one strategy for activities such as concept development and theory evaluation, we have included a variety of strategies.

Unit II, Nursing Theories , focuses largely on the grand nursing theories and begins with a chapter describing their historical development. This unit divides the grand nursing theories into three groups based on their focus (human needs, interactive process, and unitary process). The works of many of the grand theorists are briefly summarized in Chapters 7 through 9. Because this volume is intended to serve as a broad foundation, these analyses provide the reader with enough information to understand the basis of the work and to whet the reader's appetite to select one or more for further study rather than delving into significant detail.

Chapters 10 and 11 cover the significant topic of middle range nursing theory. Chapter 10 presents a detailed overview of the origins and growth of middle range theory in nursing and gives numerous examples of how middle range theories have been developed by nurses. Chapter 11 provides an overview of some of the growing number of middle range nursing theories. The theories presented include some of the most commonly used middle range nursing theories (e.g., Pender's Health Promotion Model and Leininger's Culture Care Diversity and Universality Theory) as well as some that are less well known but have a growing body of

research support (e.g., Meleis's Transitions Theory, the Theory of Unpleasant Symptoms, and the Uncertainty in Illness Theory). The intent is to provide a broad range of middle range theories to familiarize the reader with examples and to encourage them to search for others appropriate to their practice or research. Ultimately, it is hoped that readers will be challenged to develop new theories that can be used by nurses.

Chapter 12, which discusses EBP, explains and defines the idea/process of EBP and describes how it relates to nursing theory and application of theory in nursing practice and research. The chapter concludes with a short presentation and review of five different EBP models that have been widely used by nurses and are well supported in the literature.

Unit III, Shared Theories Used by Nurses , is rather unique in nursing literature. Our book acknowledges that "shared" or "borrowed" theories are essential to nursing and negates the idea that the use of shared theory in practice or research is detrimental. In this unit, we have identified some of the most significant theories that have been developed outside of the discipline of nursing but are continually used in nursing. We have organized these theories based on broad disciplines: theories from the sociologic sciences, behavioral sciences, biomedical sciences, and philosophy, and ethical theories and principles as well as theories and frameworks from administration, management, and learning. Each of these chapters was written by a nurse with both educational and practical experience in his or her respective area. These theories are presented with sufficient information to allow the reader to understand the theories and to recognize those that might be appropriate for his or her own work. These chapters also provide original references and give examples of how the concepts, theories, and models described have been used by other nurses.

Finally, **Unit IV, Application of Theory in Nursing** , explains how theories are applied in nursing. Separate chapters cover nursing practice, nursing research, nursing administration and management,

and nursing education. These chapters include many specific examples for the application of theory and are intended to be a practical guide for theory use. The heightened development of practice theories and EBP guidelines are critical to theory application in nursing today, so these areas have been expanded. The unit concludes with a chapter that discusses some of the future issues in theory within the discipline.

Key Features

In addition to numerous tables and boxes that highlight and summarize important information, *Theoretical Basis for Nursing* contains case studies, learning activities, exemplars, and illustrations that help students visualize various concepts.

New to this edition, you will find additional detailed explanation of clinical judgment, evidence-based practice, situation-specific theories, and their relationship to theory in nursing. Numerous recent examples of application of theories in nursing practice, nursing research, leadership/administration, and education. Enhanced instructional support, focusing on activities and information directed toward online learning.

Other key features include the following.

NEW to This Edition

- **NEW! Applying the Essentials:** New to this edition is a special boxed feature that highlights how a topic is outlined in the American Association of Colleges of Nursing (AACN's, 2021) updated *The Essentials: Core Competencies for Professional Nursing Education.*
- **Link to Practice** : All chapters include at least one "Link to Practice" box, which presents useful information or clinically related examples related to the subject being discussed. The

intent is to give additional tools or resources that can be used by nurses to apply the content in their own practice or research.

- **Case Studies** : At the end of Chapter 1 and the beginning of the remaining Chapters 2 through 23, case studies help the reader understand how the content in the chapter relates to the everyday experience of the nurse, whether in practice, research, or other aspects of nursing.
- **Learning Activities** : At the end of each chapter, learning activities pose critical thinking questions, propose individual and group projects related to topics covered in the chapter, and stimulate classroom discussion.
- **Exemplars** : In five chapters, an exemplar discusses a scholarly study from the perspectives of concept analysis (Chapter 3); theory development (Chapter 4); theory analysis and evaluation (Chapter 5); middle range theory development (Chapter 10); and theory generation via research, theory testing via research, and use of a theory as the conceptual framework for a research study (Chapter 20).
- **Illustrations** : Diagrams and models are included throughout the book to help the reader better understand the many different theories presented.

Student Resources Available on thePoint

- **Literature Assessment Activity** provides an interactive tool featuring journal articles along with critical thinking questions that will encourage students to engage with the literature. Students can print or e-mail their responses to their instructor.
- **Case Studies** with applicable questions guide students in understanding how the various theories link to nursing practice.
- **Learning Objectives** for each chapter help focus the student on outcomes.
- **Internet Resources** provide live web links to pertinent sites so that students can further their study and understanding of the various theories.

- **Journal Articles** for each chapter offer opportunities to gain more knowledge and understanding of the chapter content.

Instructor Resources Available on thePoint

- **Instructor's Guide** includes application-level discussion questions and classroom/online activities that Melanie McEwen uses in her own teaching!
- **Strategies for Effective Teaching of Nursing Theory** provide ideas for instructors to help make the nursing theory class come alive.
- **Test Generator Questions** provide multiple-choice questions that can be used for testing general content knowledge.
- **PowerPoints with audience response (Iclicker) questions** , based on the ones used by Melanie McEwen in her own classroom, help highlight important points to enhance the classroom experience.
- **Case Studies** with questions, answers, and related activities offer opportunities for instructors to make the student case studies an exciting, fun, and rewarding classroom/online experience.
- **Image Bank** provides images from the text that instructors can use to enhance their own presentations.

In summary, the focus of this learning package is on the application of theory rather than on the study, analysis, and critique of grand theorists or a presentation of a specific aspect of theory (e.g., construction or evaluation). It is hoped that practicing nurses, nurse researchers, and nursing scholars, as well as graduate students and theory instructors, will use this book and its accompanying resources to gain a better understanding and appreciation of theory.

Melanie McEwen, PhD, RN, CNE, ANEF, FAAN

Evelyn M. Wills, PhD

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Unit I

Introduction to Theory

1

Philosophy, Science, and Nursing

Melanie McEwen

Largely due to the work of nursing scientists, nursing theorists, and nursing scholars over the past 6 decades, nursing has been recognized as both an emerging profession and an academic discipline. Crucial to the attainment of this distinction have been numerous discussions regarding the phenomena of concern to nurses and countless efforts to enhance involvement in theory utilization, theory generation, and theory testing to direct research and improve practice.

A review of the nursing literature from the late 1970s until the present shows sporadic discussion of whether nursing is a profession, a science, or an academic discipline. These discussions are sometimes pleading, frequently esoteric, and occasionally confusing. Questions that have been raised include: What defines a profession? What constitutes an academic discipline? What is nursing science? Why is it important for nursing to be seen as a profession or an academic discipline?

Nursing as a Profession

In the past, there has been considerable discussion about whether nursing is a profession or an occupation. This is important for nurses to consider for several reasons. An occupation is a job or a career, whereas a profession is a learned vocation or occupation that has a status of superiority and precedence within a division of work. In general terms, occupations require widely varying levels of training or education, varying levels of skill, and widely variable defined knowledge bases. In short, all professions are occupations, but not all occupations are professions (Finkelman, 2019).

Professions are valued by society because the services professionals provide are beneficial for members of the society. Characteristics of a profession include (1) defined and specialized knowledge base, (2) control and authority over training and education, (3) credentialing system or registration to ensure

competence, (4) altruistic service to society, (5) a code of ethics, (6) formal training within institutions of higher education, (7) lengthy socialization to the profession, and (8) autonomy (control of professional activities; Finkelman, 2019 ; Rutty, 1998 ; Stegen & Sowerby, 2019). Professions must have a group of scholars, investigators, or researchers who work to continually advance the knowledge of the profession with the goal of improving practice. Finally, professionals are responsible and accountable to the public for their work (Hood, 2018). Traditionally, professions have included the clergy, law, and medicine.

Until near the end of the 20th century, nursing was viewed as an occupation rather than a profession. Nursing has had difficulty being deemed a profession because many of the services provided by nurses have been perceived as an extension of those offered by wives and mothers. Additionally, historically, nursing has been seen as subservient to medicine, and nurses have delayed in identifying and organizing professional knowledge. Furthermore, education for nurses is not yet standardized, and the three-tier entry-level system (diploma, associate's degree, and bachelor's degree) into practice that persists has hindered professionalization because a college education is not yet a requirement. Finally, autonomy in practice is incomplete because nursing is still dependent on medicine to direct much of its practice.

On the other hand, many of the characteristics of a profession can be observed in nursing. Indeed, nursing has a social mandate to provide health care for clients at different points in the health–illness continuum. There is a growing knowledge base, authority over education, altruistic service, a code of ethics, and registration requirements for practice. Although the debate is not closed, it can be successfully argued that nursing is an aspiring, evolving profession (Finkelman, 2019 ; Hood, 2018 ; Judd & Sitzman, 2014). See Link to Practice 1-1 for more information on the future of nursing as a profession.

Link to Practice 1-1

The Future of Nursing

The Institute of Medicine (IOM, 2011) issued a series of sweeping recommendations directed to the nursing profession. The IOM explained their "vision" is to make quality, patient-centered care accessible for all Americans. Recommendations included a three-pronged approach to meeting the goal.

The first “message” was directed toward transformation of practice and precipitated the notion that nurses should be able to practice to the full extent of their education. Indeed, the IOM advocated for removal of regulatory, policy, and financial barriers to practice to ensure that “current and future generations of nurses can deliver safe, quality, patient-centered care across all settings, especially in such areas as primary care and community and public health” (p. 30).

A second key message related to the transformation of nursing education. In this regard, the IOM promotes “seamless academic progression” (p. 30), which includes a goal to increase the number and percentage of nurses who enter the workforce with a baccalaureate degree or who progress to the degree early in their career. Specifically, they recommend that 80% of registered nurses (RNs) be bachelor of science in nursing (BSN) prepared by 2020. Last, the IOM advocated that nurses be full partners with physicians and other health professionals in the attempt to redesign health care in the United States.

These “messages” are critical to the future of nursing as a profession. Indeed, standardization of entry level into practice at the BSN level, coupled with promotion of advanced education and independent practice, and inclusion as “leaders” in the health care transformation process will help solidify nursing as a true profession.

An update (IOM, 2016) indicated that there has been “significant progress” (p. 50) toward reducing APRN scope of practices issues from a national perspective, as more states now allow nurse practitioners (NPs) full practice authority. Furthermore, although there has been some progress with expansion of the percentage of RNs with a BSN (from 49% to 51%), there is still much to do to meet the goal of 80%. Finally, the IOM concluded that data are lacking on efforts to develop the skills and competencies nurses need for leadership. The report reinforced the goal for nurses to seek “leadership positions in order to contribute their unique perspective and expertise on such issues as health care delivery, quality, and safety” (p. 149).

Nursing as an Academic Discipline

Disciplines are distinctions between bodies of knowledge found in academic settings. A *discipline* is “a branch of knowledge ordered through the theories

and methods evolving from more than one worldview of the phenomenon of concern" (Parse, 1997 , p. 74). It has also been termed a field of inquiry characterized by a unique perspective and a distinct way of viewing phenomena (Fawcett, 2012 ; Rodgers, 2018).

Viewed another way, a discipline is a branch of educational instruction or a department of learning or knowledge. Institutions of higher education are organized around disciplines into colleges, schools, and departments (e.g., business administration, chemistry, history, and engineering).

Disciplines are organized by structure and tradition. The structure of the discipline provides organization and determines the amount, relationship, and ratio of each type of knowledge that comprises the discipline. The tradition of the discipline provides the content, which includes ethical, personal, esthetic, and scientific knowledge (Northrup et al., 2004 ; Risjord, 2010). Characteristics of disciplines include (1) a distinct perspective and syntax, (2) determination of what phenomena are of interest, (3) determination of the context in which the phenomena are viewed, (4) determination of what questions to ask, (5) determination of what methods of study are used, and (6) determination of what evidence is proof (Donaldson & Crowley, 1978).

Knowledge development within a discipline proceeds from several philosophical and scientific perspectives or worldviews (Litchfield & Jónsdóttir, 2008 ; Newman et al., 1991 ; Risjord, 2010 ; Rodgers, 2018). In some cases, these worldviews may serve to divide or segregate members of a discipline. For example, in psychology, practitioners might consider themselves behaviorists, Freudians, or any one of a number of other divisions.

Several ways of classifying academic disciplines have been proposed. For instance, they may be divided into the basic sciences (physics, biology, chemistry, sociology, anthropology) and the humanities (philosophy, ethics, history, fine arts). In this classification scheme, it is arguable that nursing has characteristics of both.

Distinctions may also be made between academic disciplines (e.g., physics, physiology, sociology, mathematics, history, philosophy) and professional disciplines (e.g., medicine, law, nursing, social work). In this classification scheme, the academic disciplines aim to "know," and their theories are descriptive in nature. Research in academic disciplines is both basic and applied. Conversely, the professional disciplines are practical in nature, and their research tends to be more prescriptive and descriptive (Donaldson & Crowley, 1978).

Nursing's knowledge base draws from many disciplines. In the past, nursing depended heavily on physiology, sociology, psychology, and medicine to provide academic standing and to inform practice (Box 1-1). In recent decades, however, nursing has been seeking what is unique to nursing and developing those aspects into an academic discipline (Parse, 2015). Areas that identify nursing as a distinct discipline are as follows:

Box 1-1 Applying the Essentials

McEwen-ch001-para019"Knowledge for Nursing Practice provides the context for understanding nursing as a scientific discipline. The lens of nursing, informed by nursing history, knowledge, and science, reflects nursing's desire to incorporate multiple perspectives into nursing practice, leading to nursing's unique way of knowing and caring" (American Association of Colleges of Nursing, 2021 , p. 27).

- An identifiable philosophy
- At least one conceptual framework (perspective) for delineation of what can be defined as nursing
- Acceptable methodologic approaches for the pursuit and development of knowledge (Oldnall, 1995)

To begin the quest to validate nursing as both a profession and an academic discipline, this chapter provides an overview of the concepts of science and philosophy. It examines the schools of philosophical thought that have influenced nursing and explores the epistemology of nursing to explain why recognizing the multiple "ways of knowing" is critical in the quest for development and application of theory in nursing. Finally, this chapter presents issues related to how philosophical worldviews affect knowledge development through research. This chapter concludes with a case study that depicts how "the ways of knowing" in nursing are used on a day-to-day, even moment-by-moment, basis by all practicing nurses.

Introduction to Science and Philosophy

Science is concerned with causality (cause and effect). The scientific approach to understanding reality is characterized by observation, verifiability, and

experience; hypothesis testing and experimentation are considered scientific methods. In contrast, *philosophy* is concerned with the purpose of human life, the nature of being and reality, and the theory and limits of knowledge. Intuition, introspection, and reasoning are examples of philosophical methodologies. Science and philosophy share the common goal of increasing knowledge (Fawcett, 2012 ; Polifroni, 2018 ; Silva, 1977). The science of any discipline is tied to its philosophy, which provides the basis for understanding and developing theories for science (Gustafsson, 2002 ; Morse, 2017 ; Silva & Rothbart, 1984).

Overview of Science

Science is both a process and a product. Parse (1997) defined science as the "theoretical explanation of the subject of inquiry and the methodological process of sustaining knowledge in a discipline" (p. 74). Science has also been described as a way of explaining observed phenomena as well as a system of gathering, verifying, and systematizing information about reality (Streubert & Carpenter, 2011). As a process, science is characterized by systematic inquiry that relies heavily on empirical observations of the natural world. As a product, it has been defined as empirical knowledge that is grounded and tested in experience and is the result of investigative efforts. Furthermore, science is conceived as being the consensual, informed opinion about the natural world, including human behavior and social action (Gortner & Schultz, 1988).

Science has come to represent knowledge, and it is generated by activities that combine advancement of knowledge (research) and explanation for knowledge (theory; Powers & Knapp, 2011). Citing Van Laer, Silva (1977) lists six characteristics of science (Box 1-2).

Box 1-2 Characteristics of Science

1. Science must show a certain coherence.
2. Science is concerned with definite fields of knowledge.
3. Science is preferably expressed in universal statements.
4. The statements of science must be true or probably true.
5. The statements of science must be logically ordered.
6. Science must explain its investigations and arguments.

Source: Silva (1977) .

Science has been classified in several ways. These include pure or basic science, natural science, human or social science, and applied or practice science. The classifications are not mutually exclusive and are open to interpretation based on philosophical orientation. Table 1-1 lists examples of a number of sciences by this manner of classification.

Table 1-1

Classifications of Science

Classification	Examples
Natural sciences	Chemistry, physics, biology, physiology, geology, meteorology
Basic or pure sciences	Mathematics, logic, chemistry, physics, English (language)
Human or social sciences	Psychology, anthropology, sociology, economics, political science, history, religion
Practice or applied sciences	Architecture, engineering, medicine, pharmacology, law

Some sciences defy classification. For example, computer science is arguably applied or perhaps pure. Law is certainly a practice science, but it is also a social science. Psychology might be a basic science, a human science, or an applied science, depending on what aspect of psychology one is referring to.

There are significant differences between the human and natural sciences. Human sciences refer to the fields of psychology, anthropology, and sociology and may even extend to economics and political science. These disciplines deal with various aspects of humans and human interactions. Natural sciences, on the other hand, are concentrated on elements found in nature that do not relate to the totality of the individual. There are inherent differences between the human and natural sciences that make the research techniques of the natural sciences (e.g., laboratory experimentation) improper or potentially problematic for human sciences (Gortner & Schultz, 1988).

It has been posited that although nursing draws on the basic and pure sciences (e.g., physiology and chemistry) and has many characteristics of social sciences, it is without question an applied or practice science. However, it is important to note that it is also synthesized, in that it draws on the knowledge of other established disciplines—including other practice disciplines (Dahnke & Dreher, 2016 ; Holzemer, 2007 ; Risjord, 2010).

Overview of Philosophy

Within any discipline, both scholars and students should be aware of the philosophical orientations that are the basis for developing theory and advancing knowledge (Dahnke & Dreher, 2016 ; DiBartolo, 1998 ; Northrup et al., 2004 ; Risjord, 2010). Rather than a focus on solving problems or answering questions related to that discipline (which are tasks of the discipline's science), the philosophy of a discipline studies the concepts that structure the thought processes of that discipline with the intent of recognizing and revealing foundations and presuppositions (Blackburn, 2016).

Philosophy has been defined as "a study of problems that are ultimate, abstract, and general. These problems are concerned with the nature of existence, knowledge, morality, reason, and human purpose" (Teichman & Evans, 1999 , p. 1). Philosophy tries to discover knowledge and truth and attempts to identify what is valuable and important.

Modern philosophy is usually traced to Rene Descartes, Francis Bacon, Baruch Spinoza, and Immanuel Kant (ca. 1600–1800). Descartes (1596–1650) and Spinoza (1632–1677) were early rationalists. Rationalists believe that reason is superior to experience as a source of knowledge. Rationalists attempt to determine the nature of the world and reality by deduction and stress the importance of mathematical procedures.

Bacon (1561–1626) was an early empiricist. Like rationalists, he supported experimentation and scientific methods for solving problems.

The work of Kant (1724–1804) set the foundation for many later developments in philosophy. Kant believed that knowledge is relative and that the mind plays an active role in knowing. Other philosophers have also influenced nursing and the advance of nursing science. Several are discussed later in the chapter.

Although there is some variation, traditionally, the branches of philosophy include metaphysics (ontology and cosmology), epistemology, logic, esthetics, and ethics or axiology. Political philosophy and philosophy of science are added by some authors (Rutty, 1998 ; Teichman & Evans, 1999). Table 1-2 summarizes the major branches of philosophy.

Table 1-2

Branches of Philosophy

Branch	Pursuit
Metaphysics	Study of the fundamental nature of reality and existence—general theory of reality
Ontology	Study of theory of being (what is or what exists)

Branch	Pursuit
Cosmology	Study of the physical universe
Epistemology	Study of knowledge (ways of knowing, nature of truth, and relationship between knowledge and belief)
Logic	Study of principles and methods of reasoning (inference and argument)
Ethics (axiology)	Study of nature of values; right and wrong (moral philosophy)
Esthetics	Study of appreciation of the arts or things beautiful
Philosophy of science	Study of science and scientific practice
Political philosophy	Study of citizen and state

Sources: Blackburn (2016) ; Teichman and Evans (1999) .

Science and Philosophical Schools of Thought

The concept of science as understood in the 21st century is relatively new. In the period of modern science, three philosophies of science (paradigms or worldviews) dominate: rationalism, empiricism, and human science/phenomenology. Rationalism and empiricism are often termed *received view* and human science/phenomenology and related worldviews (i.e., historicism) are considered *perceived view* (Hickman, 2011 ; Meleis, 2018). These two worldviews dominated theoretical discussion in nursing through the 1990s. More recently, attention has focused on another dominant worldviews: "postmodernism" (Meleis, 2018 ; Reed, 1995).

Received View (Empiricism, Positivism, Logical Positivism)

Empiricism has its roots in the writings of Francis Bacon, John Locke, and David Hume, who valued observation, perception by senses, and experience as sources of knowledge (Gortner & Schultz, 1988 ; Powers & Knapp, 2011). Empiricism is founded on the belief that what is experienced is what exists, and its knowledge base requires that these experiences be verified through scientific methodology (Dahnke & Dreher, 2016 ; Gustafsson, 2002). This knowledge is then passed on to others in the discipline and subsequently built on. The term *received view* or *received knowledge* denotes that individuals learn by being told or receiving knowledge.

Empiricism holds that truth corresponds to observable, reduction, verification, control, and bias-free science. It emphasizes mathematic formulas to explain phenomena and prefers simple dichotomies and classification of concepts. Additionally, everything can be reduced to a scientific formula with little room for interpretation (DiBartolo, 1998 ; Gortner & Schultz, 1988 ; Risjord, 2010).

Empiricism focuses on understanding the parts of the whole in an attempt to understand the whole. It strives to explain nature through testing of hypotheses and development of theories. Theories are made to describe, explain, and predict phenomena in nature and to provide understanding of relationships between phenomena. Concepts must be operationalized in the form of propositional statements, thereby making measurement possible. Instrumentation, reliability, and validity are stressed in empirical research methodologies. Once measurement is determined, it is possible to test theories through experimentation or observation, which results in verification or falsification (Polifroni, 2018 ; Suppe & Jacox, 1985).

Positivism is often equated with empiricism. Like empiricism, positivism supports mechanistic, reductionist principles, where the complex can be best understood in terms of its basic components. *Logical positivism* was the dominant empirical philosophy of science between the 1880s and 1950s. Logical positivists recognized only the logical and empirical bases of science and stressed that there is no room for metaphysics, understanding, or meaning within the realm of science (Polifroni, 2018 ; Risjord, 2010). Logical positivism maintained that science is value free, independent of the scientist, and obtained using objective methods. The goal of science is to explain, predict, and control. Theories are either true or false, subject to empirical observation, and capable of being reduced to existing scientific theories (Rutty, 1998).

Contemporary Empiricism/Postpositivism

Positivism came under criticism in the 1960s when positivistic logic was deemed faulty (Rutty, 1998). An overreliance on strictly controlled experimentation in artificial settings produced results that indicated that much significant knowledge or information was missed. In recent years, scholars have determined that the positivist view of science is outdated and misleading in that it contributes to overfragmentation in knowledge and theory development (DiBartolo, 1998). It has been observed that positivistic analysis of theories is fundamentally defective due to insistence on analyzing the logically ideal, which results in findings that have little to do with reality. It was maintained that the context of discovery was artificial and that theories

and explanations can be understood only within their discovery contexts (Suppe & Jacox, 1985). Also, scientific inquiry is inherently value laden, as even choosing what to investigate and/or what techniques to employ will reflect the values of the researcher.

The current generation of postpositivists accepts the subjective nature of inquiry but still supports rigor and objective study through quantitative research methods. Indeed, it has been observed that modern empiricists or postpositivists are concerned with explanation and prediction of complex phenomena, recognizing contextual variables (Powers & Knapp, 2011 ; Reed, 2008).

Nursing and Empiricism

As an emerging discipline, nursing has followed established disciplines (e.g., physiology) and the medical model in stressing logical positivism. Early nurse scientists embraced the importance of objectivity, control, fact, and measurement of smaller and smaller parts. Based on this influence, acceptable methods for knowledge generation in nursing have stressed traditional, orthodox, and preferably experimental methods.

Although positivism continues to heavily influence nursing science, that viewpoint has been challenged in recent years (Risjord, 2010). Consequently, postpositivism has become one of the most accepted contemporary worldviews in nursing.

Perceived View (Human Science, Phenomenology, Constructivism, Historicism)

In the late 1960s and early 1970s, several philosophers, including Kuhn, Feyerbend, and Toulmin, challenged the positivist view by arguing that the influence of history on science should be emphasized (Dahnke & Dreher, 2016). The perceived view of science, which may also be referred to as the interpretive view, includes phenomenology, constructivism, and historicism. The interpretive view recognizes that the perceptions of both the subject being studied and the researcher tend to de-emphasize reliance on strict control and experimentation in laboratory settings (Monti & Tingen, 1999).

The perceived view of science centers on descriptions that are derived from collectively lived experiences, interrelatedness, human interpretation, and learned reality, as opposed to artificially invented (i.e., laboratory-based) reality (Rutty, 1998). It is argued that the pursuit of knowledge and truth is naturally historical, contextual, and value laden. Thus, there is no single truth.

Rather, knowledge is deemed true if it withstands practical tests of utility and reason (DiBartolo, 1998).

Phenomenology is the study of phenomena and emphasizes the appearance of things as opposed to the things themselves. In phenomenology, *understanding* is the goal of science, with the objective of recognizing the connection between one's experience, values, and perspective. It maintains that each individual's experience is unique, and there are many interpretations of reality. Inquiry begins with individuals and their experiences with phenomena. Perceptions, feelings, values, and the meanings that have come to be attached to things and events are the focus.

For social scientists, the *constructivist* approaches of the perceived view focus on understanding the actions of, and meaning to, individuals. What exists depends on what individuals perceive to exist. Knowledge is subjective and created by individuals. Thus, research methodology entails the investigation of the individual's world. There is an emphasis on subjectivity, multiple truths, trends and patterns, discovery, description, and understanding.

Feminism and critical social theory may also be considered to be perceived view. These philosophical schools of thought recognize the influence of gender, culture, society, and shared history as being essential components of science (Riegel et al., 1992). Critical social theorists contend that reality is dynamic and shaped by social, political, cultural, economic, ethnic, and gender values (Streubert & Carpenter, 2011). Critical social theory and feminist theories will be described in more detail in Chapter 13.

Nursing and Phenomenology/Constructivism/Historicism

Because they examine phenomena within context, phenomenology, as well as other perceived views of philosophy, are conducive to discovery and knowledge development inherent to nursing. Phenomenology is open, variable, and relativistic and based on human experience and personal interpretations. As such, it is an important, guiding paradigm for nursing practice theory and education (DiBartolo, 1998).

In nursing science, the dichotomy of philosophic thought between the received, empirical view of science and the perceived, interpretative view of science has persisted. This may have resulted, in part, because nursing draws heavily both from natural sciences (physiology, biology) and social sciences (psychology, sociology).

Postmodernism (Poststructuralism, Postcolonialism)

Postmodernism began in Europe in the 1960s as a social movement centered on a philosophy that rejects the notion of a single "truth." Although it recognizes the value of science and scientific methods, postmodernism allows for multiple meanings of reality and multiple ways of knowing and interpreting reality (Hood, 2018 ; Reed, 1995). In postmodernism, knowledge is viewed as uncertain, contextual, and relative. Knowledge development moves from emphasis on identifying a truth or fact in research to discovering practical significance and relevance of research findings (Reed, 1995).

Similar or related constructs and worldviews found in the nursing literature include "deconstruction," "postcolonialism," and, at times, feminist philosophies. In nursing, the postcolonial worldview can be connected to both feminism and critical theory, particularly when considering nursing's historical reliance on medicine (Holmes et al., 2008 ; McGibbon et al., 2014 ; Meleis, 2018 ; Racine, 2009).

Postmodernism has loosened the notions of what counts as knowledge development that have persisted among supporters of qualitative and quantitative research methods. Rather than focusing on a single research methodology, postmodernism promotes use of multiple methods for development of scientific understanding and incorporation of different ways to improve understanding of human nature (Hood, 2018 ; Meleis, 2018 ; Rodgers, 2018). Increasingly, in postmodernism, there is a consensus that synthesis of both research methods can be used at different times to serve different purposes (Hood, 2018 ; Meleis, 2018 ; Risjord et al., 2002).

Criticisms of postmodernism have been made and frequently relate to the perceived reluctance to address error in research. Taken to the extreme as Paley (2005) pointed out, when there is absence of strict control over methodology and interpretation of research, "Nobody can ever be wrong about anything" (p. 107). Chinn and Kramer (2018) echoed the concerns by acknowledging that knowledge development should never be "sloppy." Indeed, although application of various methods in research is legitimate and may be advantageous, research must still be carried out carefully and rigorously.

Nursing and Postmodernism

Postmodernism has been described as a dominant scientific theoretical paradigm in nursing in the late 20th century (Meleis, 2018). As the discipline matures, there has been recognition of the pluralistic nature of nursing and an

enhanced understanding that the goal of research is to provide an integrative basis for nursing care (Walker & Avant, 2019).

In terms of scientific methodology, the attention is increasingly on combining multiple methods within a single research project (Chinn & Kramer, 2018). Postmodernism has helped dislodged the authority of a single research paradigm in nursing science by emphasizing the blending or integration of qualitative and quantitative research into a holistic, dynamic model to improve nursing practice. Table 1-3 compares the dominant philosophical views of science in nursing.

Table 1-3

Comparison of the Received, Perceived, and Postmodern Views of Science

Received View of Science —Hard Sciences	Perceived View of Science—Soft Sciences	Postmodernism, Poststructuralism, and Postcolonialism
Empiricism/positivism/logical positivism	Historicism/phenomenology	Macroanalysis
Reality/truth/facts considered acontextual (objective)	Reality/truth/facts considered in context (subjective)	Contextual meaning; narration
Deductive	Inductive	Contextual, political, and structural analysis
Reality/truth/facts considered ahistorical	Reality/truth/facts considered with regard to history	Reality/truth/facts considered with regard to history
Prediction and control	Description and understanding	Metanarrative analysis
One truth	Multiple truths	Different views
Validation and replication	Trends and patterns	Uncovering opposing views
Reductionism	Constructivism/holism	Macrorelationship; microstructures
Quantitative research	Qualitative research methods	Methodologic pluralism methods

Sources: Meleis (2018) ; Moody (1990) .

Nursing Philosophy, Nursing Science, and Philosophy of Science in Nursing

The terms *nursing philosophy* , *nursing science* , and *philosophy of science in nursing* are sometimes used interchangeably. The differences, however, in the general meaning of these concepts are important to recognize.

Nursing Philosophy

Nursing philosophy has been described as "a statement of foundational and universal assumptions, beliefs and principles about the nature of knowledge and thought (epistemology), and about the nature of the entities represented in the metaparadigm (i.e., nursing practice and human health processes [ontology])" (Reed, 1995 , p. 76). Nursing philosophy, then, refers to the belief system or worldview of the profession and provides perspectives for practice, scholarship, and research.

No single dominant philosophy has prevailed in the discipline of nursing. Many nursing scholars and nursing theorists have written extensively in an attempt to identify the overriding belief system, but to date, none has been universally successful. Most would agree then that nursing is increasingly recognized as a "multiparadigm discipline" (Powers & Knapp, 2011 , p. 129), in which using multiple perspectives or worldviews in a "unified" way is valuable and even necessary for knowledge development (Giuliano et al., 2005).

Nursing Science

Parse (2016) defined nursing science as "the substantive, discipline-specific knowledge that focuses on the human-universe-health process articulated in the nursing frameworks and theories" (p. 101). To develop and apply the discipline-specific knowledge, nursing science recognizes the relationships of human responses in health and illness and addresses biologic, behavioral, social, and cultural domains. The goal of nursing science is to represent the nature of nursing—to understand it, to explain it, and to use it for the benefit of humankind. It is nursing science that gives rise to the methodological processes used to develop and apply substantive nursing knowledge, and it is nursing science that provides the knowledge for all aspects of nursing (Barrett, 2017 ; Parse, 2016).

Philosophy of Science in Nursing

Philosophy of science in nursing helps to establish the meaning of science through an understanding and examination of nursing concepts, theories, laws, and aims as they relate to nursing practice. It seeks to understand truth;

to describe nursing; to examine prediction and causality; to critically relate theories, models, and scientific systems; and to explore determinism and free will (Nyatanga, 2005 ; Polifroni, 2018).

Knowledge Development and Nursing Science

Development of nursing knowledge reflects the interface between nursing science and research. The ultimate purpose of knowledge development is to improve nursing practice. Approaches to knowledge development have three facets: ontology, epistemology, and methodology. Ontology refers to the study of being: what is or what exists. Epistemology refers to the study of knowledge or ways of knowing. Methodology is the means of acquiring knowledge (Powers & Knapp, 2011). The following sections discuss nursing epistemology and issues related to methods of acquiring knowledge.

Epistemology

Epistemology is the study of the theory of knowledge. Epistemologic questions include: What do we know? What is the extent of our knowledge? How do we decide whether we know? and What are the criteria of knowledge? (Schultz & Meleis, 1988).

According to Streubert and Carpenter (2011) , it is important to understand the way in which nursing knowledge develops to provide a context in which to judge the appropriateness of nursing knowledge and methods that nurses use to develop that knowledge. This in turn will refocus methods for gaining knowledge as well as establishing the legitimacy or quality of the knowledge gained.

Ways of Knowing

In epistemology, there are several basic types of knowledge. These include the following:

- Empirics—the scientific form of knowing. Empirical knowledge comes from observation, testing, and replication.
- Personal knowledge—a priori knowledge. Personal knowledge pertains to knowledge gained from thought alone.
- Intuitive knowledge—includes feelings and hunches. Intuitive knowledge is not guessing but relies on nonconscious pattern recognition and

experience.

- Somatic knowledge—knowledge of the body in relation to physical movement. Somatic knowledge includes experiential use of muscles and balance to perform a physical task.
- Metaphysical (spiritual) knowledge—seeking the presence of a higher power. Aspects of spiritual knowing include magic, miracles, psychokinesis, extrasensory perception, and near-death experiences.
- Esthetics—knowledge related to beauty, harmony, and expression. Esthetic knowledge incorporates art, creativity, and values.
- Moral or ethical knowledge—knowledge of what is right and wrong. Values and social and cultural norms of behavior are components of ethical knowledge.

Nursing Epistemology

Nursing epistemology has been defined as "the study of the origins of nursing knowledge, its structure and methods, the patterns of knowing of its members, and the criteria for validating its knowledge claims" (Schultz & Meleis, 1988 , p. 217). Like most disciplines, nursing has both scientific knowledge and knowledge that can be termed conventional wisdom (knowledge that has not been empirically tested).

Traditionally, only what stands the test of repeated measures constitutes truth or knowledge. Classical scientific processes (i.e., experimentation), however, are not suitable for creating and describing all types of knowledge. Social sciences, behavioral sciences, and the arts rely on other methods to establish knowledge. Because it has characteristics of social and behavioral sciences, as well as biologic sciences, nursing must rely on multiple ways of knowing.

In a classic work, Carper (1978) identified four fundamental patterns for nursing knowledge: (1) empirics—the science of nursing, (2) esthetics—the art of nursing, (3) personal knowledge in nursing, and (4) ethics—moral knowledge in nursing.

Empirical knowledge is objective, abstract, generally quantifiable, exemplary, discursively formulated, and verifiable. When verified through repeated testing over time, it is formulated into scientific generalizations, laws, theories, and principles that explain and predict (Carper, 1978 , 1992). It draws on traditional ideas that can be verified through observation and proved by hypothesis testing.

Empirical knowledge tends to be the most emphasized way of knowing in nursing because there is a need to know how knowledge can be organized into laws and theories for the purpose of describing, explaining, and predicting phenomena of concern to nurses. Most theory development and research efforts are engaged in seeking and generating explanations that are systematic and controllable by factual evidence (Carper, 1978 , 1992).

Esthetic knowledge is expressive, subjective, unique, and experiential rather than formal or descriptive. Esthetics includes sensing the meaning of a moment. It is evident through actions, conduct, attitudes, and interactions of the nurse in response to another. It is not expressed in language (Carper, 1978).

Esthetic knowledge relies on perception. It is creative and incorporates empathy and understanding. It is interpretive, contextual, intuitive, and subjective and requires synthesis rather than analysis. Furthermore, esthetics goes beyond what is explained by principles and creates values and meaning to account for variables that cannot be quantitatively formulated (Carper, 1978 , 1992).

Personal knowledge refers to the way in which nurses view themselves and the client. Personal knowledge is subjective and promotes wholeness and integrity in personal encounters. Engagement, rather than detachment, is a component of personal knowledge.

Personal knowledge incorporates experience, knowing, encountering, and actualizing the self within the practice. Personal maturity and freedom are components of personal knowledge, which may include spiritual and metaphysical forms of knowing. Because personal knowledge is difficult to express linguistically, it is largely expressed in personality (Carper, 1978 , 1992).

Ethics refers to the moral code for nursing and is based on obligation to service and respect for human life. Ethical knowledge occurs as moral dilemmas arise in situations of ambiguity and uncertainty and when consequences are difficult to predict. Ethical knowledge requires rational and deliberate examination and evaluation of what is good, valuable, and desirable as goals, motives, or characteristics (Carper, 1978 , 1992). Ethics must address conflicting norms, interests, and principles and provide insight into areas that cannot be tested.

Fawcett et al. (2001) stress that integration of all patterns of knowing is essential for professional nursing practice and that no one pattern should be used in isolation from others. Indeed, they are interrelated and interdependent

because there are multiple points of contact between and among them (Carper, 1992). Thus, nurses should view nursing practice from a broadened perspective that places value on ways of knowing beyond the empirical (Silva et al., 1995). Table 1-4 summarizes selected characteristics of Carper's patterns of knowing in nursing.

Table 1-4

Characteristics of Carper's Patterns of Knowing in Nursing

Pattern of Knowing	Relationship to Nursing	Source or Creation	Source of Validation	Method of Expression	Purpose or Outcome
Empirics	Science of nursing	Direct or indirect observation and measurement	Replication	Facts, models, scientific principles, laws state-ments, theories, descriptions	Description, explanation, prediction
Esthetics	Art of nursing	Creation of value and meaning, synthesis of abstract and concrete	Appreciation; experience; inspiration; perception of balance, rhythm, proportion, and unity	Appreciation; empathy; esthetic criticism; engaging, intuiting, and envisioning	Move beyond what can be explained, quantitatively formulated, understanding, balance
Personal knowledge	Therapeutic use of self	Engagement, opening, centering, actualizing self	Response, reflection, experience	Empathy, active participation	Promote wholeness and integrity in personal encounters
Ethics	Moral component of nursing	Values clarification, rational and deliberate reasoning, obligation, advocating	Dialogue, justification, universal generalizability	Principles, codes, ethical theories	Evaluation of what is good, valuable, and desirable

Sources: Carper (1978) , (1992); Chinn and Kramer (2018) .

Other Views of Patterns of Knowledge in Nursing

Although Carper's work is considered classic, it is not without critics. Schultz and Meleis (1988) observed that Carper's work did not incorporate practical

knowledge into the ways of knowing in nursing. Because of this and other concerns, they described three patterns of knowledge in nursing: clinical, conceptual, and empirical.

Clinical knowledge refers to the individual nurse's personal knowledge. It results from using multiple ways of knowing while solving problems during client care provision. Clinical knowledge is manifested in the acts of practicing nurses and results from combining personal knowledge and empirical knowledge. It may also involve intuitive and subjective knowing. Clinical knowledge is communicated retrospectively through publication in journals (Schultz & Meleis, 1988).

Conceptual knowledge is abstracted and generalized beyond personal experience. It explicates patterns revealed in multiple client experiences, which occur in multiple situations, and articulates them as models or theories. In conceptual knowledge, concepts are drafted and relational statements are formulated. Propositional statements are supported by empirical or anecdotal evidence or defended by logical reasoning.

Conceptual knowledge uses knowledge from nursing and other disciplines. It incorporates curiosity, imagination, persistence, and commitment in the accumulation of facts and reliable generalizations that pertain to the discipline of nursing. Conceptual knowledge is communicated in propositional statements (Schultz & Meleis, 1988).

Empirical knowledge results from experimental, historical, or phenomenologic research and is used to justify actions and procedures in practice. The credibility of empirical knowledge rests on the degree to which the researcher has followed procedures accepted by the community of researchers and on the logical, unbiased derivation of conclusions from the evidence. Empirical knowledge is evaluated through systematic review and critique of published research and conference presentations (Schultz & Meleis, 1988).

Chinn and Kramer (2018) also expanded on Carper's patterns of knowing to include "emancipatory knowing"—what they designate as the "praxis of nursing." In their view, emancipatory knowing refers to human's ability to critically examine the current status quo and to determine why it currently exists. This, in turn, supports identification of inequities in social and political institutions and clarification of cultural values and beliefs to improve conditions for all. In this view, emancipatory knowledge develops from an awareness of social injustices and is expressed in actions that are directed toward changing existing social structures and establishing practices that are more equitable and favorable to human health and well-being. An

understanding of critical theory, liberation theory, and poststructuralism contribute to emancipatory knowing (Chinn, 2018).

Summary of Ways of Knowing in Nursing

For decades, the importance of the multiple ways of knowing has been recognized in the discipline of nursing. If nursing is to achieve a true integration between theory, research, and practice, theory development and research must integrate different sources of knowledge. Kidd and Morrison (1988) state that in nursing, synthesis of theories derived from different sources of knowledge will:

1. Encourage the use of different types of knowledge in practice, education, theory development, and research.
2. Encourage the use of different methodologies in practice and research.
3. Make nursing education more relevant for nurses with different educational backgrounds.
4. Accommodate nurses at different levels of clinical competence.
5. Ultimately promote high-quality client care and client satisfaction.

Research Methodology and Nursing Science

Being heavily influenced by logical empiricism, as nursing began developing as a scientific discipline in the mid-1900s, quantitative methods were used almost exclusively in research. In the 1960s and 1970s, schools of nursing aligned nursing inquiry with scientific inquiry in a desire to bring respect to the academic environment, and nurse researchers and nurse educators valued quantitative research methods over other forms.

A debate over methodology began in the 1980s, however, when some nurse scholars asserted that nursing's ontology (what nursing is) was not being adequately and sufficiently explored using quantitative methods in isolation. Subsequently, qualitative research methods began to be put into use. The assumptions were that qualitative methods showed the phenomena of nursing in ways that were naturalistic and unstructured and not misrepresented (Holzemer, 2007 ; Rutty, 1998).

The manner in which nursing science is conceptualized determines the priorities for nursing research and provides measures for determining the relevance of various scientific research questions. Therefore, the way in which

nursing science is conceptualized also has implications for nursing practice. The philosophical issues regarding methods of research relate back to the debate over the worldviews of received versus perceived views of science versus postmodernism and whether nursing is a practice or applied science, a human science, or some combination. The notion of evidence-based practice has emerged over the last few years, largely in response to these and related concerns. Evidence-based practice as it relates to the theoretical basis of nursing will be examined in Chapter 12.

Nursing as a Practice Science

In early years, the debate focused on whether nursing was a basic science or an applied science. The goal of basic science is the attainment of knowledge. In basic research, the investigator is interested in understanding the problem and produces knowledge for knowledge's sake. It is analytical and the ultimate function is to analyze a conclusion backward to its proper principles.

Conversely, an applied science is one that uses the knowledge of basic sciences for some practical end. Engineering, architecture, and pharmacology are examples. In applied research, the investigator works toward solving problems and producing solutions for the problem. In practice sciences, research is largely clinical and action oriented (Moody, 1990). Thus, as an applied or practical science, nursing requires research that is applied and clinical and that generates and tests theories related to health of human beings within their environments as well as the actions and processes used by nurses in practice.

Nursing as a Human Science

The term *human science* is traced to philosopher Wilhelm Dilthey (1833–1911). Dilthey proposed that the human sciences require concepts, methods, and theories that are fundamentally different from those of the natural sciences. Human sciences study human life by valuing the lived experience of persons and seek to understand life in its matrix of patterns of meaning and values. Some scholars believe that there is a need to approach human sciences differently from conventional empiricism and contend that human experience must be understood in context (Cody & Mitchell, 2002 ; Polifroni, 2018).

In human sciences, scientists hope to create new knowledge to provide understanding and interpretation of phenomena. In human sciences, knowledge takes the form of descriptive theories regarding the structures, processes, relationships, and traditions that underlie psychological, social, and cultural aspects of reality. Data are interpreted within context to derive

meaning and understanding. Humanistic scientists value the subjective component of knowledge. They recognize that humans are not capable of total objectivity and embrace the idea of subjectivity (Streubert & Carpenter, 2011). The purpose of research in human science is to produce descriptions and interpretations to help understand the nature of human experience.

Nursing is sometimes referred to as a human science (Cody & Mitchell, 2002 ; Polifroni, 2018). Indeed, the discipline has examined issues related to behavior and culture, as well as biology and physiology, and sought to recognize associations among factors that suggest explanatory variables for human health and illness. Thus, it fits the pattern of other humanistic sciences (i.e., anthropology, sociology).

Quantitative Versus Qualitative Methodology Debate

Nursing scholars accept the premise that scientific knowledge is generated from systematic study. The research methodologies and criteria used to justify the acceptance of statements or conclusions as true within the discipline result in conclusions and statements that are appropriate, valid, and reliable for the purpose of the discipline.

The two dominant forms of scientific inquiry have been identified in nursing: (1) empiricism, which objectifies and attempts to quantify experience and may test propositions or hypotheses in controlled experimentation and (2) phenomenology and other forms of qualitative research (i.e., grounded theory, hermeneutics, historical research, ethnography), which study lived experiences and meanings of events (Gortner & Schultz, 1988 ; Morse, 2017 ; Risjord, 2010). Reviews of the scientific status of nursing knowledge usually contrast the positivist–deductive–quantitative approach with the interpretive–inductive–qualitative alternative.

Although nursing theorists and nursing scientists emphasize the importance of sociohistorical contexts and person–environment interactions, they tend to focus on "hard science" and the research process. It has been argued that there is an overvaluation of the empirical/quantitative view because it is seen as "true science" (Tinkle & Beaton, 1983). Indeed, the experimental method is held in the highest regard. A viewpoint has persisted into the 21st century in which scholars assume that descriptive or qualitative research should be performed only where there is little information available or when the science is young. Correlational research may follow and then experimental methods can be used when the two lower ("less rigid" or "less scientific") levels have been explored.

Quantitative Methods

Traditionally, within the "received" or positivistic worldview, science has been uniquely quantitative. The quantitative approach has been justified by its success in measuring, analyzing, replicating, and applying the knowledge gained (Streubert & Carpenter, 2011). According to Wolfer (1993) , science should incorporate methodologic principles of objective observation/description, accurate measurement, quantification of variables, mathematical and statistical analysis, experimental methods, and verification through replication whenever possible.

Kidd and Morrison (1988) state that in their haste to prove the credibility of nursing as a profession, nursing scholars have emphasized reductionism and empirical validation through quantitative methodologies, emphasizing hypothesis testing. In this framework, the scientist develops a hypothesis about a phenomenon and seeks to prove or disprove it.

Qualitative Methods

The tradition of using qualitative methods to study human phenomena is grounded in the social sciences. Phenomenology and other methods of qualitative research arose because aspects of human values, culture, and relationships were unable to be described fully using quantitative research methods. It is generally accepted that qualitative research findings answer questions centered on social experience and give meaning to human life. Beginning in the 1970s, nursing scientists were challenged to explain phenomena that defy quantitative measurement and qualitative approaches, which emphasize the importance of the client's perspective, began to be used in nursing research (Kidd & Morrison, 1988).

Repeatedly, scholars state that nursing research should incorporate means for determining interpretation of the phenomena of concern from the perspective of the client or care recipient. Contrary to the assertions of early scientists, many later nurse scientists believe that qualitative inquiry contains features of good science including theory and observation, logic, precision, clarity, and reproducibility (Monti & Tingen, 1999).

Methodologic Pluralism

In many respects, nursing is still undecided about which methodologic approach (qualitative or quantitative) best demonstrates the essence and uniqueness of nursing because both methods have strengths and limitations. Beck and Harrison (2016) , Risjord (2010) , and Wood and Haber (2018) , among

others, believe that the two approaches may be considered complementary and appropriate for nursing as a research-based discipline. Indeed, it is repeatedly argued that both approaches are equally important and even essential for nursing science development.

Although basic philosophical viewpoints have guided and directed research strategies in the past, recently, scholars have called for theoretical and methodologic pluralism in nursing philosophy and nursing science as presented in the discussion on postmodernism. Pluralism of research designs is essential for reflecting the uniqueness of nursing, and multiple approaches to theory development and testing should be encouraged. Because there is no one best method of developing knowledge, it is important to recognize that valuing one standard as exclusive or superior restricts the ability to progress. In a recent reflection, Fawcett (2020) summarized this notion when explaining that the goal of nurse scientists is to conduct research to generate and test middle-range and situation-specific theories derived from nursing conceptual models and grand theories. Further, she noted that nurse scientists must be "aware of the need to translate their work into practical activities that are targeted to enhancing the quality of life of those people who seek nurses' service" (p. 98).

Summary

Nursing is an evolving profession, an academic discipline, and a science. As nursing progresses and grows as a profession, some controversy remains on whether to emphasize a humanistic, holistic focus or an objective, scientifically derived means of comprehending reality. What is needed, and is increasingly more evident as nursing matures as a profession, is an open philosophy that ties empirical concepts that are capable of being validated through the senses with theoretical concepts of meaning and value.

It is important that future nursing leaders and novice nurse scientists possess an understanding of nursing's philosophical foundations. The legacy of philosophical positivism continues to drive beliefs in the scientific method and research strategies, but it is time to move forward to face the challenges of the increasingly complex and volatile health care environment.

Key Points

- Nursing can be considered an aspiring or evolving profession.